

REMARKS

Claims 1, 2, 10-12, 20-22, and 27 are pending in this application. By this Amendment, claims 21 and 27 are amended. No new matter is added.

Applicant appreciates the courtesies shown to Applicant's representative by Examiner Pappas in the January 5, 2009 personal interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

I. Formal Matters

In the Office Action, claims 21, 22 and 27 are rejected under 35 U.S.C. §101 for allegedly being directed to non-statutory subject matter. Applicant respectfully disagrees.

For further clarity, method claims 21 and 27 are amended to clarify that the method is performed by an image generation system including a processor. This is supported, for example, by Figs. 1 and 8. As discussed during the interview, the process claims are not mental steps or abstract ideas but processes tied to physical apparatus that also achieve transformation of an image through processing steps "performed by an image generation system including a processor." Accordingly, claims 21, 22 and 27 are directed to statutory subject matter. Withdrawal of the rejection is respectfully requested.

II. Pending Claims 1, 2, 10-12, 20-22 and 27 Define Patentable Subject Matter

In the Office Action, claims 1, 2, 10-12, 20-22 and 27 are rejected under 35 U.S.C. §103(a) over *Computer Graphics: Principles and Practices* to Foley et al. ("Foley") in view of U.S. Patent No. 6,734,850 to Deering (which corresponds to previously cited U.S. Patent Application Publication No. 2003/0011618A1 to Deering) and U.S. Patent No. 5,990,904 to Griffin. This rejection is respectfully traversed.

In making the rejection, the Office Action on page 4 equates limiting of an infinite view to a finite view volume in Foley to the recited partial subset of viewing volume defined by the depth cueing area. Applicant respectfully disagrees. As discussed during the

interview, this merely defines the view volume itself limited by a front and back clipping plane. Depth cue processing is then understood to be performed throughout the entire finite view volume as there is no teaching that depth cue processing is limited within this view volume.

In contrast, as discussed during previous and the current personal interview, specific depth cue processing occurs only within the defined depth cueing area (limited processing), which as previously amended was defined as "part of a viewing volume based on a position of the viewpoint and includes a backward clipping plane of the viewing volume." This feature is supported, for example, by Applicant's page 15, lines 17-20, page 17, lines 13-24 and illustrated by Figs. 2, 3A and 3B and 6A. With this, depth cueing and/or alpha value processing is limited in what regions within the view volume depth cue processing will take place to only be performed for objects within this narrowly defined depth cueing area, resulting in a reduced processing load (as processing is not needed near the front of the view volume as described in Applicant's Fig. 2) while solving problems such as flicker described in Fig. 3A.

Additionally, Applicant disagrees with the Examiner's definition of the recited "depth cueing area." When read in light of Applicant's disclosure, this phrase is not referring to a geometric definition of a two-dimensional "area" as alleged. Instead, it is understood to refer to a three-dimensional area or "volume" as shown in the attached representative Figs. A-C, which were also discussed during the personal interview. In these representative figures, the viewing volume is the volume defined by vertices a, b, c, d, e, f, g and h. The backward clipping plane is the surface comprising vertices e, f, g and h. The "depth cueing area" is described in the specification as a "subset" of the viewing volume that includes the backward clipping plane and would thus correspond, for example, to the shaded depth cueing area

shown in representative Figs. A-C as including the 3-D volume defined by vertices e, f, g, h, i, j, k and l.

As discussed during the interview, this is supported, for example, by the totality of disclosure in the specification and figures. For example, knowing that the view volume is a 3-D area, Fig. 2, shown only in terms of the depth dimension Z, illustrates that the "depth cueing area" is a "subset" of the whole viewing volume that does not include the front clipping plane, but includes a region towards the rear of the view volume that includes the backward clipping plane. Thus, when this is read and understood in the context of Figs. 3A, 3B, 4, 6A and 6B, for example, which show 3-D views of 3-D objects spatially separated upon which depth cueing is performed, the "depth cueing area" would be readily understood by one of ordinary skill in the art as a subset of the 3-D view volume such as that shown shaded in representative Fig. A. That is, the depth cueing effect alters the look of a 3-D object as the object becomes farther placed in the Z-direction. The "area" of depth cueing is thus understood to also be a 3-D area in order to effect such alteration of the 3-D objects in the 3-D view volume as shown in these drawings.

As also discussed during the interview, this is consistent with the ordinary meaning of the term, which is not limited to a 2-D area. For example, The American Heritage Dictionary, Second College Edition defines area in several more general terms as, for example, (1) "a section or region, as of land;" (2) "a distinct part or section, as of a building, set aside for a specific function;" and (3) "the range or scope of something." Thus, although area could be 2-D, it is not limited to this.

It is alleged and was repeated during the interview by Examiner Pappas that any 2-D area within the view volume of Foley could be considered a "depth cueing area" such as the backward clipping plane itself or a 2-D area defined along the Z-axis. However, while these are "areas" where depth cue processing could be performed, there is no teaching that the

specific depth cue processing claimed is limited to be performed only in such a subset area of the view volume as claimed. Instead, if any depth cue processing were to occur in Foley, it would occur throughout the entire view volume, and would thus consume unnecessary processing resources.

Foley thus fails to recognize the specific advantages achievable by the claimed subject matter, such as preventing screen flicker, while being able to reduce processing load since the entire view volume does not need to be processed.

That is, regardless of whether one arbitrarily defines a 2-D or 3-D area in Foley, there is no teaching or rationale to limit depth cue processing to only this subset of the total view volume as claimed. Instead, as discussed, Foley merely teaches to define a finite view volume to limit the number of output primitives through the use of front and back clipping planes. However, this limits the field of view (view volume) and does not limit the processing of depth cueing to a depth cueing area that is less than the whole view volume.

Thus, Foley fails to appreciate that alpha blending and depth cueing require little, if any, modification to objects near the viewpoint. Foley also fails to appreciate that by preventing processing for objects located substantially near the front of the image, regardless of the size of the viewing volume, additional load reductions can occur while still achieving a noticeable effect of the depth cueing and alpha processing near the backward clipping plane, such as reduced flicker. Therefore, there is no rationale for modification to Foley to limit depth cue processing to only the depth cueing as recited in independent claims 1, 10, 11, 20, 21 and 27. Deering and Griffin fail to overcome the deficiencies of Foley.

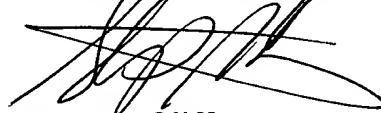
Accordingly, independent claims 1, 10, 11, 20, 21, and 27 and claims dependent therefrom distinguish over the cited art. Withdrawal of the rejection is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the pending claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Representative Figures A-C

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